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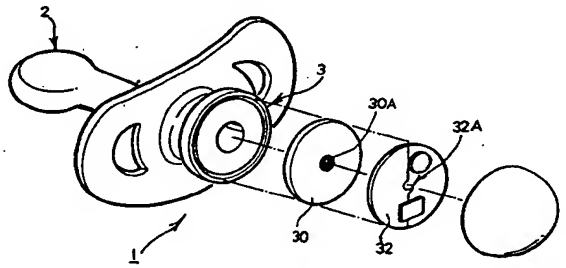
(54) Infant pacifiers with a diaphragm melody generator.

(57) An infant pacifier with a diaphragm melody generator B in which only when the infant holds the pacifier in the mouth and sucks or mumbles, a diaphragm switch 30 of the melody generator is operated in order to permit the generator to generate melody. The present pacifier comprises a nipple part 2 for being held by the infant mouth, a handle part 1 for permitting the pacifier to be handled and a melody generator. In accordance with the holding force when the infant holds the nipple part 2 of the pacifier in the mouth the diaphragm switch 30 turns the melody generator B and an electronic circuit board 32 for generating the melody in cooperation with the diaphragm switch 30 on and off. The diaphragm switch 30 is applied with conductive ink 30A at its center and easily expanded and contracted by the holding force. The electronic circuit board 32 has a switching portion 32A, at which positive and negative terminal wires are provided such that they are normally spaced apart from each other, at its center and is disposed such that it is minutely spaced apart from the diaphragm switch 30.

FIG. 4



EP 0 536 636 A1

the pacifier 1. Such a pressure transfer is caused by whether the infant holds or releases the nipple part.

In other words, the melody generator B enclosed in the handle part 3 of the pacifier 1 comprises, as depicted in Figs. 3 and 4, a diaphragm switch 30 which is applied with conductive ink 30A at its center and preferably made of soft synthetic resin or rubber in order to be easily expanded and contracted even by a relative lower pressure. In addition, in order to generate the melody in cooperation with the diaphragm switch 30 when the infant holds the nipple part 2 of the pacifier 1 in the mouth and sucks or mumbles the part, an electronic circuit board 32, having a switching portion 32A at its center, is provided such that it is minutely spaced apart from the diaphragm switch 30. At the switching portion 32A, the electronic circuit 32 is provided with the positive and negative terminal wires which are normally spaced apart from each other as shown in Fig. 4.

As depicted in Fig. 3, a speaker 34 is disposed at a position which is opposite to the diaphragm switch 30 with respect to the electronic circuit board 32 and spaced apart from the board 32 by a predetermined interval. Here, the diaphragm switch 30, the electronic circuit board 32 and the speaker 34 are preferably incorporated with the handle part 3 of the pacifier 1 by fitting or bonding.

The operational effect of the present infant pacifier 1 having the aforementioned construction will be described as follows.

When the infant holds the nipple part 2 of the pacifier 1 in the mouth and sucks or mumbles it, the nipple part 2 is compressed and there occurs pressure transfer of inner pressure of the pacifier 1 from the nipple part 2 to the diaphragm switch 30 inside the handle part 3. As a result, the diaphragm switch 30 is caused to expand toward the electronic circuit board 32 until its center part, which is applied with the conductive ink 30A, comes into close contact with the switching portion 32A of the electronic circuit board 32. In accordance, the positive and negative terminal wires of the switching portion 32A are connected to each other through the conductive ink 30A of the diaphragm switch 30 and this permits the electronic circuit board 32 to be turned on. In this respect, the melody generator B starts its operation in order to generate the melody by way of the speaker 34.

On the other hand, when the infant stops sucking or mumbling the nipple part 2 of the pacifier 1, the inner pressure of the pacifier 1 returns to its original state, that is, a state of equilibrium. In other words, the compressed inner pressure biasing the diaphragm switch 30 toward the electronic circuit board 32 is expelled to the inside of the released nipple part 2. In this regard, the diaphragm switch 30 returns to its original state wherein it is minutely spaced apart from the electronic circuit board 32 and, in this state, the melody generator B is turned off in order to stop generating the melody.

As described above, the present invention provides an infant pacifier having a melody generator which is simply operated, without additional manual operation, owing to pressure transfer of the inner pressure of the pacifier which occurs only when the infant holds the soft nipple part of the pacifier in the mouth and sucks or mumbles the nipple part, thereby simplifying its operation. In addition, the melody generator is not operated by those close to the infant but freely operated in response to the infant intention and this causes the infant to efficiently develop its intellectual powers, furthermore, this efficiently entertains the infants. Differently from the prior embodiment, the present infant pacifier is prevented from continuous generation of the melody against intention of infants and, in this respect, has no bad influence upon the character formation of infants.

Although the preferred embodiments of the present invention have been disclosed for illustrative purpose, those skilled in the art will appreciate that various modifications, additions and substitutions are possible, without departing from the scope and spirit of the invention as disclosed in the accompanying claims.

Claims

1. An infant pacifier comprising:

   a nipple part (2) for being held by the infant mouth;

   a handle part (1) for permitting said pacifier to be handled;

   and

   melody generating means (B) for generating melody, said means being enclosed in said handle part (1) and operated by holding force generated when the infant holds said nipple part (2).

2. An infant pacifier according to claim 1, wherein said melody generating means comprises:

   a diaphragm switch (30) for turning on/off said means (B) in accordance with the holding force, said diaphragm switch (30) being applied with conductive ink (30A) at its center and easily expanded and contracted by the holding force; and an electronic circuit board (32) for generating the melody in cooperation with said diaphragm switch (30) when the infant holds said nipple part of the pacifier in the mouth, said electronic circuit board (32) having a switching portion (32A), at which positive and negative terminal wires are provided such that

FIG.1

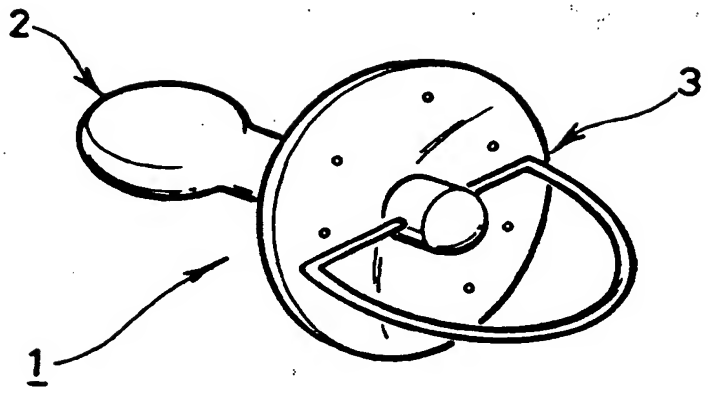
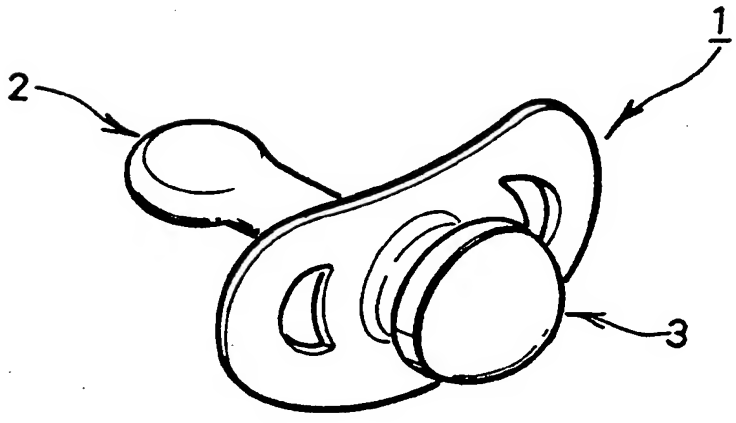


FIG.2



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EUROPEAN SEARCH REPORT

Application Number

EP 92 11 6782

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
X	EP-A-0 185 614 (INTERNATIONAL CUSTOMS ESTABLISHMENT)	1	A61J17/00
A	* page 4, line 13 - page 5, line 17; figures *	2	
X	EP-A-0 199 005 (RODAM S.A.)	1	
	* claim 1; figures *		
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			A61J

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	10 DECEMBER 1992	GODOT T.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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